

# Somali vowel qualities and vowel harmony domains

Morgan Nilsson & Laura J. Downing  
University of Gothenburg

NACAL 47 @ LACITO, Paris  
24 June 2019

# Background

- Somali is often mentioned in typological literature on vowel harmony (e.g., Kaisse 2016, Krämer 2003)
- because Somali vowel harmony is reported to apply regressively over unusually long stretches, even whole clauses (Andrzejewski 1955, Saeed 1999)
- Its harmonic vowel sets are also interesting (Saeed 1999):
  - ɪ, u, ɛ, ɔ, ɑ (-ATR) – neutral
  - i, ɨ, e, ö, æ (+ATR) – **culus**
- as fronting of back vowels is unusual in ATR-harmony systems

# Background

- The Somali data cited is still mostly drawn from Armstrong (1934), Andrzejewski (1955 etc.) and Saeed (1999).
- Only a few new experimental studies have been conducted (Edmondson et al. 2003, Mohamoud 2013, Kimper et al. 2017), generally reinvestigating data similar to previous studies.

# This study

- This talk presents a phonetic study analysing a body of new data recorded with three speakers
- testing whether Somali has clausal vowel harmony

Our results are organized as follows:

- New near minimal pairs,
- Phonetic study of vowel contrasts,
- Domains of vowel harmony.

# The new data

- We have recorded and analysed 8785 tokens / 1753 types, consisting of both words, phrases and sentences.
- Our data represent one speaker from Kismaayo and two from Mogadishu.
- The data was analysed with Praat for F1 and F2, the two acoustic properties best determining the vowel contrasts
- Based on minimal and near minimal pairs we established the F1 and F2 of the ten vowel qualities for each speaker.



## THE HORN OF AFRICA

- Approximate area inhabited by Somali people
- AFAR** Other ethnic group

# Minimal pairs

Previous sources of minimal pairs:

- The first descriptions (Armstrong 1934, Andrzejewski 1955) are old and contain words and grammatical forms that are not in common use in today's Somali.
- Later work generally investigates the same examples.
- As words that are not in common use are difficult to elicit, we elicited many new near minimal pairs working with our speakers.

# Minimal pairs

sugaa 'ascertains'

aad 'you'

baad 'extortion'

ammaan 'praise'

daar 'switch on'

feer 'rib'

eeg 'look'

diin 'religion'

doonta 'wants'

sügää 'waits'

ääd 'very; go'

bääd 'food; wing'

ämmään 'security'

däär 'building'

fäär 'fist'

ëög 'present moment'

diiin 'turtle'

döööntä 'the boat'

NB! tremas mark *culus* vowels

# Near minimal pairs

- arrin ‘matter’      äddin ‘call to prayer’
- danab ‘thunder’    dähäb ‘gold’
- Aamino (name)    äämmiin ‘trustworthy’
- laamo ‘branches’   läämi ‘asphalt’
- saafi ‘clean’       säämi ‘share, stock’
- baal ‘feather’      bääldi ‘bucket’
- eber ‘zero’        ëbi ‘afterbirth’
- eed ‘accusation’   gëëd ‘tree’
- eebo ‘spear’        ëëddö ‘aunt’
- ilo ‘sources’        ilkö ‘teeth’
- misig ‘hip’         midig ‘right side’
- misir ‘lentils’     miyir ‘consciousness’
- fiin ‘bustard’      fiid ‘dusk’
- miir ‘clear liquid’   miig ‘Mig plane’
- ol’ole ‘campaign’   ölööl ‘flame’
- dood ‘discussion’   bööd ‘jump’
- mood ‘belongings’   möödsii ‘let pass’
- koob ‘cup’         dööbi ‘milk container’
- udub ‘pillar’        ügüb ‘virgin’
- urur ‘organization’   ürüg ‘depression’
- lulmo ‘sleepiness’   Lüül (name)
- durdur ‘stream’    dürdürö ‘galloping’
- uur ‘pregnancy’    üüd ‘meadow’

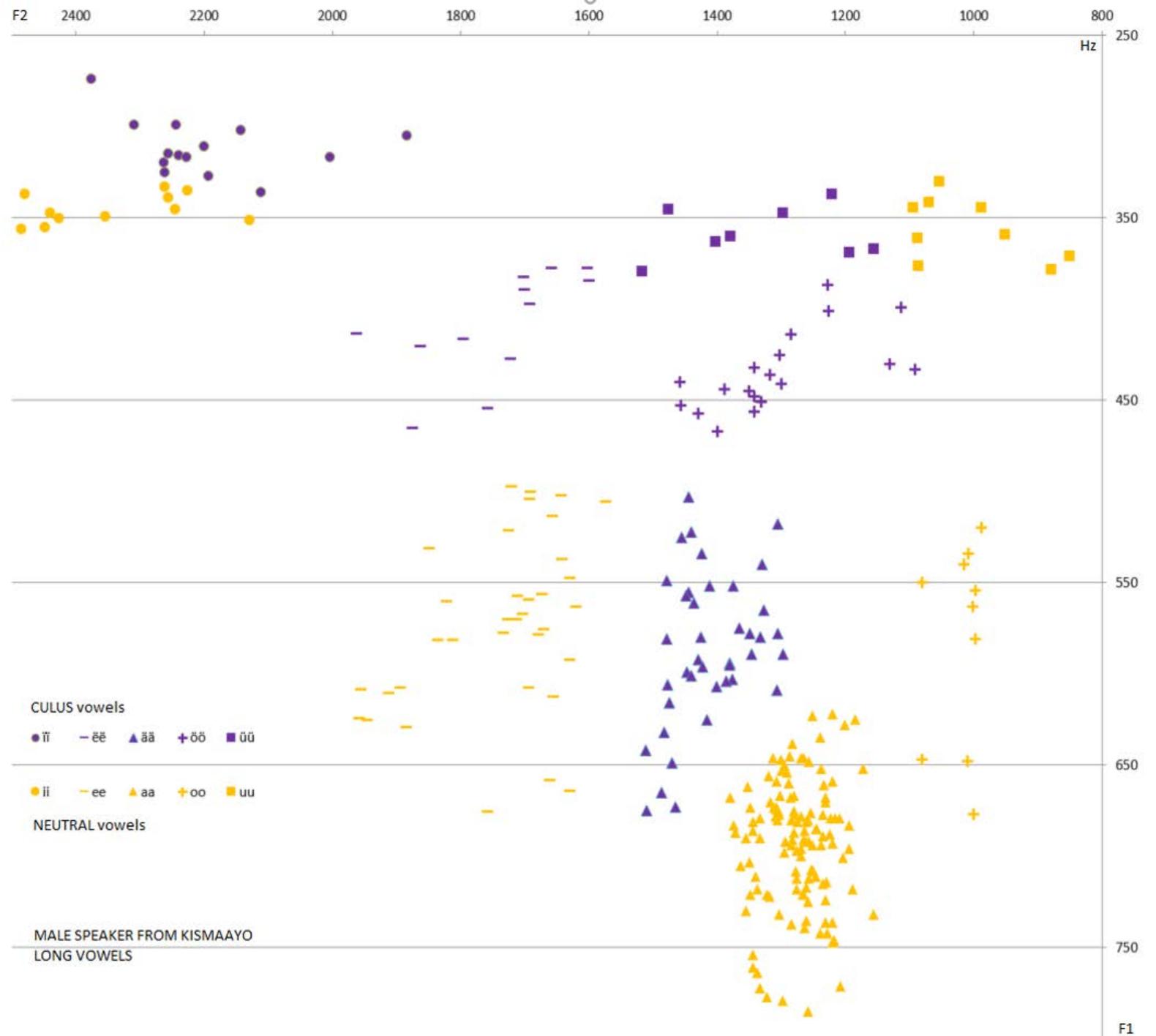
# Phonetic study of vowel contrasts

- Measurements of F1 and F2 in vowels in root morphemes confirmed that there is both fronting and raising, with fronting being more prominent in back vowels and raising in front vowels.
- The *culus* high front vowel is even pronounced as slightly retracted by one of the spekaers, so that the *culus* vowels are all more centralised, as shown in Figure 1 on the next slide.

Fig. 1

culus vs. neutral  
long vowels

produced by male  
speaker from  
Kismaayo



## 4. The domains of vowel harmony

Based on these measurements we investigated whether there is a phrasal harmony process that includes the whole clause.

We tested larger and larger harmony domains

- root internal
- grammatical word internal
- beyond the grammatical word

## 4.1 Root internal VH

- The new data confirms that underived morphemes agree in their harmonic quality.

MO13.65      danab ‘thunder’  
AEA20.339    shabeel ‘tiger’  
AEA18.116    Maxamed ‘Mohammed’

MO13.172    dähäb ‘gold’  
MO12.7      märöödi ‘elephant’  
AEA21.2181    mägäälö ‘town’

## 4.2 Grammatical word internal VH

## 4.2.1 Suffixes as targets

Culus roots trigger progressive harmony on suffixes:

Demonstrative *-aa, -aas*

- **dadkaa** [datka:] ‘those people’  
MO16.2749

- **raggaas** ‘those men’  
MO16.2638

Plural *-o*

- **naago** ‘women’  
MO15.1711

- **gëedkää** [ge:tkæ:] ‘that tree’  
MO16.2743

- **hüngürigääs** ‘that gullet’  
MO16.2619

- **nirgö** ‘camel foals’  
MO15.1070

## 4.2.2 Suffixes as triggers

Some suffixes are *culus* and trigger harmony in a preceding root:

- verbal nouns

sheeg ‘tell it’  
MO15.4110

hel ‘find it’  
MO15.4137

shëëg**id** ‘(the act of) telling’  
MO15.4116

hë**lid** ‘(the act of) finding’  
MO15.4140

- possessives, 1 person singular

laan ‘branch’  
AEA21.325

lään**täy**dä ‘my branch’  
AEA21.778

- progressives

eeg ‘look’  
AEA20.2161

ëëg**äy**ää ‘is looking’  
AEA20.2125

## 4.3 Beyond the grammatical word

## 4.3.1 Within the verbal complex

- Beyond the grammatical word, one also finds regressive harmony from a verb to preceding particles within what Somali grammarians call the **verbal group** or **verbal complex** (Zholkovskij 1979: 309, Saeed 1999: 163):

[ indef.subj.pron. + obj.pron. + loc.particles + negation + verb ]

- These particles are arguably clitic-like, as they immediately precede the verb, they have a fixed internal order, and no other lexical categories can intervene between them and the verb.
- These particles typically harmonize with the verb.

## 4.3.1.a Indefinite subject pronoun *la* ‘one’

- Waa [**la** cunaa]. ‘One eats it.’ MO16:906
- Waa [**lä** böödää]. ‘One jumps.’ MO16:914
- Waa [**la** cabbaa]. ‘One drinks it.’ AEA20.2805
- Waa [**lä** yimid]. ‘One arrived.’ MO16:927

## 4.3.1.b Negation *ma* 'not'

- Oday [**ma** aha].  
'He's not an old man.'  
MO19.3860

Oday [**mä** ihī].  
'I'm not an old man.'  
MO19.3812

## 4.3.1.c Locative particles

- Venitive *soo* 'towards'

[**soo** gado] 'buy it'  
MO19.2442

[**söö** iïbsö] 'buy it'  
MO19.2420

- Ablative *ka* 'from, of'

[**ka** bax] 'get out'  
AEA23.87

[**kä** bööd] 'jump out'  
AEA23.30

- Locative *ku* 'in, on, at'

Waa [**ku** tuuraa]. 'He throws it there.'  
AEA20.1548

[**kü** bööd] 'jump in'  
MO19.1830

## 4.3.2 Beyond the verbal complex

- Regressive harmony can extend beyond the verbal complex to preceding **function words** that are arguably not clitic-like, such as the sentence type markers (Saeed 1999)

## 4.3.2.a Declarative marker *waa*

- **Waa** sugay.

‘He has ascertained it.’

AEA20.2320

- **Waa** baal.

‘It’s a feather.’

MO15.2606:

**Wää** sügäy.

‘He has waited.’

AEA20.2312

**Wää** wääx.

‘It’s a quarter.’

MO15.2624

## 4.3.2.b *Waa* + contracted subject pronoun

- **Waan** arkayaa.  
‘I am seeing it.’  
MO15.3775

**Wään** äädäyää.  
‘I am going.’  
MO15.3737

## 4.3.2.c Other sentence type markers

- *Ma*, interrogative marker

Tani **ma** gabar baa?

‘Is this a girl?’

MO19.1985

Täni **mä** döön baa?

‘Is this a boat?’

MO19.3958

- *Ha*, optative & prohibitive marker

**Ha** imaan.

‘Don’t come’

MO19.2327

**Hä** jöögö.

‘Let him stay.’

AEA20.3294

## 4.3.3 No progressive spreading

- *Baa*, focus marker

MO15.2851: Mä dül **baa**? 'Is it a nostril?'      \* Mä dül bää?

MO15.2872: Mä gëed **baa**? 'Is it a tree?'

- Auxiliary verbs: *doonaa* (future tense)

MO15.4251: Waan hëli **doonaa**. 'I will find it'      \* Waan hëli döönää

MO15.4263: Waan shëegi **doonaa**. 'I will tell it.'

AEA21.4419: Wään shëegi **doonaa**. 'I will tell it.'

### 4.3.3

Note from the last two examples that **we find variation in the domain** of regressive harmony.

- MO15.4263: **Waan** shëëgi doonaa. ‘I will tell it.’
- AEA21.4419: **Wään** shëëgi doonaa. ‘I will tell it.’

We return to the topic of variation and gradiency at the end of the talk.

## 4.3.4 Harmony between lexical words

Regressive – but not progressive – harmony is systematically found within compounds

- MO19.1029: **bäd**-wëyn ‘ocean (lit. big sea)’  
cf. MO19.1048: **bad** ‘sea’
- MO19.1138: **dhägäx**-mädöw ‘flintstone (lit. black stone)’  
Cf. MO19.1155: **dhagax** ‘stone’
- MO19.1451: **äf**-Ämxääri ‘Amharic language’  
Cf. MO19.1550: **af**-Sawaaxili ‘Swahili language’

## 4.3.4 Compounds

### **No progressive spreading**

- MO19.655: libääx-badeed 'shark (lit. lion of the sea)'
- MO19.910: häbään-bar 'midnight'

## 4.3.4 Harmony between lexical words

Harmony is not systematically found outside of compounds

Noun + Adjective

bad wëyn 'a big sea'

MO19.1061

badda wëyn 'the big sea'

MO19.1065

reer 'family'

MO18.690

reer Mäxämüüd 'Mahamud's family'

MO19.863

Compound

bäd-wëyn 'ocean'

MO19.1029

rëer-mägääl 'city folk'

MO19.682

## 4.3.4 Harmony between lexical words

Adjectives can *optionally* trigger harmony on a preceding noun

### ***Noun + Adjective***

mëel fög 'a distant place'

MO19.253

cf. meel 'place'

MO19.268

mëel dhöw 'a close by place'

MO19.414

But: meel dhöw 'a close by place'

MO19.451

suuq mädöw 'black market'

MO19.351

## 4.4 Does VH take a clausal domain?

Can harmony affect all the words in a clause, as claimed in previous literature, like Andrzejewski (1955) and Hall et al. (1974)?

a. Andrzejewski (1955; cited in Txanson 2010)

Bëertii mä söö **iïb**sätäy?

‘Have you bought the garden?’

b. Hall et al. (1974: 261; cited in Krämer 2003)

i. Beera cusub baa loo beeray.

‘New gardens were cultivated for them.’

ii. Bëerä cüsüb bää löö **sämëëyëy**.

‘New gardens were made for them.’

## 4.4 Does VH take a clausal domain?

**We are not convinced of this.**

Speech rate is noted (e.g., by Andrzejewski 1955) as important in triggering long distance harmony.

At a normal speech rate, it is common to get disharmonic stretches

Note *neutral* words, italicized, between two *culus* words:

- a. Bërbërä *ayuu* tégäyää. 'He is going to Berbera.' MO16.1239
- b. Bërbërä *buu* tégäyää. 'He is going to Berbera.' MO16.1249

## 4.4 Does VH take a clausal domain?

Longer harmonic stretches often have more than one *culus* source; this isn't always clearly noted in previous work.

- a. Wüxüü **äädäy Bërbërä**. 'He went to Berbera.' MO16.1217
- b. Wüü **wëyn yähäy**. 'He is big.' MO15.3639

Note: boldfaced words are underlyingly *culus*.

## 4.4 Does VH take a clausal domain?

We are also beginning to suspect that Armstrong (1934) is correct in proposing that **there is a process of fronting and raising harmony** triggered by [i] and [j] that is distinct from *culus* harmony.

This process can apply across lexical word boundaries:

Müüsää yimid. ‘Musa has arrived.’ MO17.1410

cf. Muusa

## 4.4 Does VH take a clausal domain? No!

Regressive *culus* harmony applies in

- **the complex word group**, a prosodic unit larger than Pword but smaller than a phrase,
- plus lexicalized collocations and compounds.

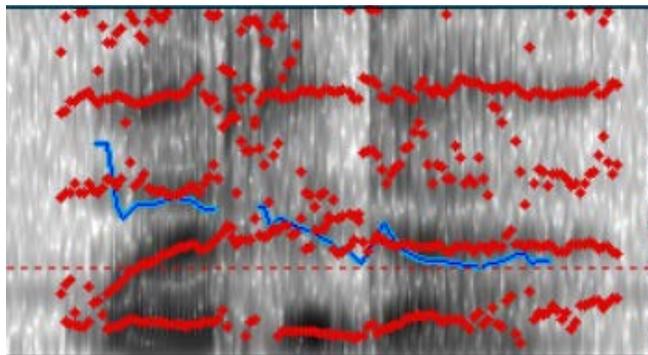
It does not generally apply across lexical word boundaries.

The high front vowel harmony might have a different domain.

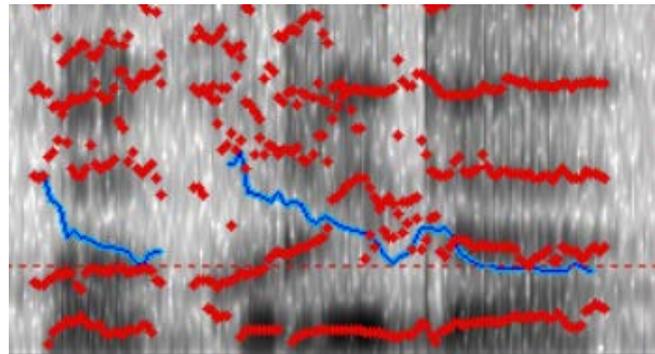
This requires further investigation.

## 5. Gradiency and variation

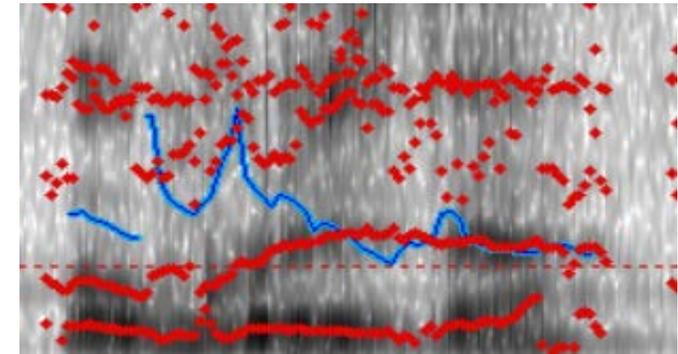
- A final issue in determining the domain of VH is that one finds gradiency and variation in its realization.



**Wää** ridää.  
'He shoots'  
AEA20:1480  
F1: 462, F2: 1470



**Wää** kü ri- dää.  
'He throws it away.'  
AEA20:1492  
F1: 387, F2: 1153



**Waa** kü ri- dää.  
'He throws it away.'  
AEA20:1482  
F1: 400, F2: 999

# 5. Gradiency and variation

Variation between speakers as well as by the same speaker.

- MO15.4263: Waan shëëgi doonaa. 'I will tell it.'
- AEA21.4419: Wään shëëgi doonaa. 'I will tell it.'

## 6. Conclusions

To sum up, the most important findings presented in this talk are:

- 1) The series of *culus* vowels are fronted and/or raised as compared to the neutral series. The back vowels are primarily fronted, whereas the front vowels are primarily raised = **Centralization**.
- 2) The long distance vowel harmony affecting whole clauses initially reported by Andrzejewski (1955) has not been successfully reproduced. Instead **the primary domain of harmony is the complex word group**: a prosodic unit larger than Pword but smaller than a phrase.
- 3) Variation and gradiency as well as high front vowel harmony make analysis of the *culus* domain challenging and require further study.

Thank you!

Mahadsanidiin!

# References

- Andrzejewski, B. W. 1955. The problem of vowel representation in the Isaaq dialect of Somali. *Bulletin of the School of Oriental and African Studies* 17(3), 567-580.
- Armstrong, L. E. 1934. The phonetic structure of Somali. Reprinted 1964.
- Edmondson, J. A., J. H. Esling & J. G. Harris. 2003. Supraglottal cavity shape, linguistic register, and other phonetic features of Somali. Ms. University of Victoria, BC.
- Kaisse, E. 2016. What kinds of processes are postlexical? Ms. University of Washington.
- Kimper, W., W. Bennett, C. Green & C. Yu. 2017. Acoustic correlates of harmony classes in Somali. To appear in *Selected proceedings of ACAL48*.
- Krämer, M. 2003. *Vowel harmony and correspondence theory*. The Hague: Mouton de Gruyter.
- Mansur, A. O. & A. Puglielli. 1999. *Barashada naxwaha af Soomaaliga. A Somali school grammar*. London: HAAN.
- Mohamoud, H. A. 2013. ATR harmony in Somali. MA thesis. Leiden University.
- Saeed, J. 1999. *Somali*. Amsterdam: John Benjamins.
- Zholkovskij, A. K. 1979. *Somali Syntax*. Hyattsville, MD: MRM Inc.